

CLAIMS:

1. (Currently Amended) A peptide antagonist of zonulin comprising an amino acid sequence ~~selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24~~ and SEQ ID NO:35, wherein said peptide antagonist binds to a zonula occludens toxin receptor, yet does not physiologically modulate the opening of mammalian tight junctions.
2. (Cancelled) ~~A method for treatment of gastrointestinal inflammation comprising administering to a subject in need of such treatment, a pharmaceutically effective amount of a peptide antagonist of zonulin, wherein said peptide antagonist comprises an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, and SEQ ID NO:24, wherein said peptide antagonist binds to a zonula occludens toxin receptor in the intestine of said subject, yet does not physiologically modulate the opening of tight junctions in said intestine.~~
3. (Original) A method for treatment of a condition associated with breakdown of the blood brain barrier comprising administering to a subject in need of such treatment, a pharmaceutically effective amount of a peptide antagonist of zonulin, wherein said peptide antagonist comprises amino acid sequence SEQ ID NO:35, wherein said peptide antagonist binds to zonula occludens toxin receptor in the brain of said subject, yet does not physiologically modulate the opening of tight junctions in said brain.
4. (New) The method of claim 3 wherein the condition is cerebral ischemia.
5. (New) The method of claim 3 wherein the condition is stroke or cerebral edema.
6. (New) The method of claim 3 wherein the condition is hypertension.
7. (New) The method of claim 3 wherein the condition is convulsive seizure.
8. (New) The method of claim 3 wherein the condition is uremia.
9. (New) The method of claim 3 wherein the condition is meningitis.
10. (New) The method of claim 3 wherein the condition is encephalitis.

11. (New) The method of claim 3 wherein the condition is encephalomyelitis.
12. (New) The method of claim 3 wherein the condition is traumatic brain injury.
13. (New) The method of claim 3 wherein the condition is radiation brain injury.
14. (New) The method of claim 3 wherein the condition is multiple sclerosis.
15. (New) The method of claim 3 wherein the condition is or Guillain-Barre Syndrome.